

Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy:
Standards and Intellectual Property:
Licensing Terms: Some Comments

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1. Standards.

I wish to address some issues about the licensing of intellectual property where the subject of the intellectual property is a component of an industry standard. In order that my remarks will be clear, I must preface them with some basic remarks about standards themselves, identifying different types of standards. Obviously, these remarks are intended to be only detailed enough to serve as a background for my discussion of licensing terms.

Industry standards are, among other things, rules governing the design and construction of products. Safety standards govern the design of products in ways that are intended to reduce their hazards. Quality standards govern the design and/or composition of products in ways that are designed to ensure levels of minimum quality. Coordination or interoperability standards govern design to ensure that products from different producers operate together without problems.

2. Types of Standards.

Standards are set either as de facto standards by the market or consensually by the decision of a standards-setting organization whose authority is accepted by industry members. The market sets a de facto standard when a technology becomes so widely accepted that it is generally used within the industry as a guide to the design of products. The Windows operating system is perhaps the most widely recognized example of a de facto standard. The Windows operating system provides the platform to which most software applications designed for consumer use are written. Most software application providers aiming for the consumer marketplace design their software to interact with the Windows operating system. During much of the 1980s, most personal computer manufacturers modeled their machines on the IBM personal computer, whose specifications they copied. Their machines, often called “clones” of the IBM pc were advertised as “IBM compatible”. The use of the phrase “IBM compatible” was a reference to the set of product characteristics belonging to the IBM personal computer, and that phrase communicated the information that the machines in question would perform all of the operations of the IBM personal computer in essentially the same way. In effect, the IBM characteristics were also de facto standards because (1) those characteristics governed product design throughout most of the personal computer industry and (2) the dominance of those characteristics was the result of market selection rather than selection by a standards-setting organization. The difference between the IBM compatible standard and the Windows standard, is that the Windows standard remains under the control of a single firm (Microsoft), whereas the IBM compatible standard was set by a single firm (IBM) but was later appropriated by the industry. Consensual standards are set by agreements involving industry members or an association (like Underwriters Laboratories) whose decisions the industry accepts.

3. Technology Advances.

When technology advances, the new technology may not fit the preexisting sets of standards written for older technology. In order to facilitate the deployment of the newer technology, the standards may have to be modified. Yet modification of the older standards may prove difficult. Some business firms and indeed whole industry sectors that are benefiting from the older technology may be disadvantaged when the new technology comes on line. Indeed, these firms may have substantial unamortized investments in the older technology, and the value of those investments may fall as a result of the introduction of a newer and more efficient technology. As a result, the firms that would be disadvantaged by the new technology may attempt to block the modification of the industry standards that would facilitate its introduction. These potentially disadvantaged firms, even if they do not control the decision of the governing standards body, nonetheless may be able to block or delay the modification of the standards, by raising issues about the safety, quality, or compatibility of the new technology, issues which raise doubts and are therefore sufficient to prevent the rapid modification of standards which is required for the technology advance to become widely shared.

4. Intellectual Property Rights.

Intellectual property (patents, copyright, trade secrets) provide means for controlling a covered technology. Thus when standards incorporate technologies that are protected by intellectual property, intellectual property provides a tool for use by the standard-setting authority in controlling the use of the standard. This may be particularly important in connection with standards governing coordination or interoperability. When products must work together, then coordination standards assist producers to make products that will work with those of others. Such coordination standards are very important in the software context, where programs must work with other programs. In particular, software application programs must work with operating systems. Yet software is particularly vulnerable to fragmentation, i.e., the development of multiple versions of a program, each version reflecting the particular needs of a user

The fragmentation of unix is a widely recognized example of a standard falling victim to fragmentation. Thus unix—created by Bell Laboratories in the 1970s—is a widely used example of the fragmentation of a standard. After its creation, unix was extensively employed by many firms and individuals. Some of them introduced modifications, with the result that various versions of unix emerged. This created a circumstance in which one version would not necessarily interact with other versions, at least without problems. This devolution of unix into a number of variations may have been the result of a failure or absence of intellectual property rights. It was not until 1980 that computer programs were brought under the protection of the copyright law. Java is another example of a technology threatened by fragmentation. Sun Microsystems designed its Java programming language to enable programmers to write programs that would run on any operating system. The feasibility of that objective rested, in Sun's view, upon the preservation of java's integrity. Microsoft's efforts in developing a Windows-specific version of Java, therefore, were perceived by Sun as major steps toward fragmenting Java and thereby towards destroying its interoperability. This concern over fragmentation underlay Sun's litigation with Microsoft, its complaints about the latter to the Justice Department, and indeed a major part of the Department's case against Microsoft. But

intellectual property provides means for meeting the problem of fragmentation. Sun Microsystems does not suffer from the same handicap in asserting its control over java that ATT bore in trying to control unix. Even the open software movement ultimately relies upon intellectual property rights to ensure that its license terms are respected.

5. Intellectual Property Rights, Royalty Terms and Other Matters.

When a standard is composed of one or more technologies that are protected by intellectual property rights, the standards-setting authority will have to deal with the licensing of those technologies. If the technology incorporated in the standard is subject to the intellectual-property rights of a particular business firm, then that firm will be able to collect royalties from all the users of the standard. Should the owner of intellectual property rights reveal its ownership of those rights to the standards body prior to the adoption of the standard? Should the owner of those rights commit itself to a fair and reasonable royalty in advance? Should it bargain with the standards body about the precise amount of the royalty in advance?

These questions require us to distinguish between mandatory and permissive standards. A mandatory standard is one that must be used by all industry participants. A permissive standard is one whose use is optional. A standard that approves a technology as safe, for example, would be a permissive standard, where other rival technologies also provide (different) means for performing the same function. In the *Allied Tube* case,ⁱ for example, the standards-setting body was considering the approval of polyvinyl chloride electrical conduit as an additional alternative to steel conduit. The approval of polyvinyl chloride did not require its use; steel conduit was an alternative. In this case, producers of steel electrical conduit wanted to thwart the adoption of standards approving a newer technology, polyvinyl chloride conduit. Taking advantage of the Association's "consensus standard making" procedure in which standards are approved at the association's annual meeting by vote of the membership, the steel conduit producers recruited substantial numbers of essentially sham members to pack the annual meeting.

Some of the internal industry conflict over modifying the standard to authorize the new technology might be mitigated if the new technology had been subject to intellectual-property protection. If the technology for producing polyvinyl chloride conduit had been subject to patent or other intellectual property rights, the rights holder would have been able to charge a royalty to users, but its power to do so would be limited. In the case of a permissive standard, the rights holder would be able to charge a royalty limited to the cost or other advantage of the new technology over the preexisting technology. The availability of the preexisting technology would limit its power to charge a royalty to an amount that did not exceed the advantages of the new over the older technology.

Note here that business firms that have been profiting from the older technology and/or that have substantial sunk investments in the older technology would feel less threatened by the newer technology if they learned that the patentee would impose sufficiently high royalties on users of the new technology. Indeed, a royalty in the amount of the efficiency advantage of the new technology would effectively neutralize the competitive advantage of the new technology and would thereby

remove the immediate threat that the new technology poses to outstanding investments in the older technology. Thus (at least in theory) the prospect of a royalty would itself dampen the internal industry opposition to the broadening of a standard to recognize a new technology.

In the case of a mandatory standard, i.e., a standard with which all producers must comply, the situation is different. In this circumstance there is no preexisting technology that serves as an alternative and thus that exerts a check on the royalty that the patentee (or other ip rights holder) may impose on those who use the standard. In a case in which a standards-setting body is considering the approval of a patented (or other protected) technology for inclusion in a mandatory standard, it seems *prima facie* appropriate for the standards-setting authority to obtain a commitment in advance from the patentee (or other ip rights holder) about the royalties that it will charge users. An advance commitment to limit royalties to a fair and reasonable amount or even to a specific negotiated amount seems more necessary when the technology is incorporated in a mandatory standard than when it is incorporated in a permissive standard. If industry members are to bind themselves to employ a specific technology, they have an interest in identifying the terms on which that technology will be made available to them.

Indeed, the case in which there are differing technologies helps to illuminate the incentives of industry members to act in various ways. When a new technology appears that reduces production costs (or raises demand), the industry will benefit overall from the implementation of the new technology. If the rights holder makes the technology available at a royalty rate that is just short of capturing the reduction in production costs under the new technology, industry members have an incentive to accept the new technology. During the term of intellectual-property protection, production costs fall but the ip rights holder captures the benefit of the cost saving; output continues at the preexisting level; and prices are unaffected. At the end of that term, the royalty terminates; producers' costs fall accordingly; industry output expands; and prices fall. At this point the public receives the full benefits of the new technology.

Suppose there are presently differing technologies deployed in the industry. The coexistence of differing technologies means that each technology has an advantage which offset its disadvantages vis-à-vis the other coexisting technologies. When a new technology comes on the scene, it might threaten the existing technologies in different ways. It might, for example, offer a production cost saving for small-scale plants, but leave large plants unaffected. In that case, its value would be measured by the production cost saving for the small plants. The ip rights holder could charge a royalty just less than the cost saving available to the small plants. If the new technology also offered a cost saving to large plants, but in a lesser amount, then the rights holder would maximize its return if it could charge different royalties: a higher one to small plants measured by the cost savings to them and a smaller one to large plants measured by the cost savings to them.

The prior discussion has assumed a royalty keyed to output; such an arrangement makes the royalty charge part of the licensees' marginal costs. As suggested in the discussion above, the result of such a royalty is that the patentee captures the efficiency value of the new technology during the term of the patent. During that term, the output and price are pretty much what they would have been under the older technology. The public is not adversely affected, but neither does the consuming

public benefit during the patent term. It is at the end of the patent term (when the royalty—which is part of each producer’s marginal cost—disappears) that the public benefits: at that time the marginal costs of the producers fall, output increases and prices fall. Now let consider a lump sum royalty. Under a lump sum royalty, the royalty charge does not become a part of the short-term marginal costs of any of the producers. In theory, a lump sum royalty for the use of a cost-reducing technology would benefit the public immediately: the licensees’ marginal costs would fall immediately, output would increase and prices would fall.

Let me enter a caveat here. A lump sum royalty, once paid, would discourage the licensees from using a substitute technology. To overcome that discouraging effect, the alternative technology would have to be not just better, but so much better that licensees would be willing to purchase rights to the alternative technology, even though they have already purchased the technology officially sanctioned as a standard. Thus the developer of an alternative technology would be impeded from marketing its substitute technology. This was the issue in the first Microsoft antitrust case. Microsoft’s practice was to issue licenses to computer manufacturers for installing a number of Windows systems equal to the estimated computer-production capacity of each licensee. As a result, licensees were discouraged from using alternative operating systems, since they had already purchased rights to install Windows. A manufacturer would not consider the option of installing a rival operating system (such as IBM’s OS2), since the manufacturer would effectively have to pay twice for the right to install the alternative operating system: It had paid Microsoft, and then would have to pay IBM.

Does a similar problem arise in the context of licensing standard technology? In answering that question, let’s observe that Microsoft’s Windows operating system was a de facto standard. Thus the holder of intellectual property rights over a de facto standard (like Microsoft) is vulnerable to the claim that it is engaging in exclusionary behavior when it charges a lump sum license to install (or otherwise use) the protected technology for the estimated output of each licensee. Probably lump sum licenses would not be so vulnerable if they were not keyed to the entire production capacity of the licensees. Indeed the settlement of that case authorized lump sum payments for less than the licensee’s production capacity. Do similar problems arise in the case of standards set by standards bodies? Well, standards bodies that reflect the underlying agreement of the industry may be subject to the critique leveled at Microsoft. These standards bodies are engaged in collective decision-making, so their decisions are agreements subject to section one of the Sherman Act. Should they impose licensing terms that discourage the acceptance of new technologies, those decisions would be subject to antitrust scrutiny. Of course much standard-setting is necessarily exclusive: we (the standards setting authority, acting on behalf of the industry) are adopting this technology and not that technology. But that is to oversimplify. A permissive standard is not inherently exclusive. The exclusion, if any, comes from a failure to accord permissive status to an alternative technology. A mandatory standard is, of course, exclusionary by definition. In the context of permissive standards, lump-sum licenses keyed to one technology and not to another could raise issues similar to those described above. In order to raise these issues a permissive standard would have to be very widely used and the lump sum licenses would have to be keyed to the production capacities of the licensees.

A second caveat. Ideally, a lump sum license ought not to be sold for a fixed amount to all comers. Otherwise large producers would be advantaged over smaller producers, the lump sum being allocated in the former case over a larger output. Perhaps the best adjustment would be a lump sum payment for a set number of output units, the number covered constituting a large volume, but within the capacity of small producers to handle. Large producers would purchase several such licenses.

7. Other Legal Problems Involving Licensing

A number of issues involving intellectual property, the licensing of intellectual property, and antitrust law arise when the technology incorporated in one or more industry standards is subject to intellectual property protection. Some standards may constitute monopolies; others may not. A standard is likely to be a monopoly when its use is mandatory, either because the standards-setting body requires it or because the market requires it. Usually, when a standard-setting authority establishes a mandatory standard involving technology protected by intellectual-property rights, it will have taken steps to ensure that any royalty is fair and reasonable and generally available to industry participants on nondiscriminatory terms.

A de facto standard, however, is a standard selected by the market and may be under the control of a single firm. The Windows operating system, for example, is a de facto standard, as noted above.

8. Licensing Issues: Leveraging a Standard Through Integration or Tying: Antitrust Perspectives

Licensing issues surround the licensing of a standard technology together with one or more complementary technologies. Such a practice can be thought of as involving the leveraging of the standard into another market or as expanding the scope of the standard or as entrenching the standard. Such a leveraging practice underlay the *Microsoft* antitrust litigation. In that case, Microsoft's efforts to leverage its operating system (which was a de facto standard) to foster use of its browser was attacked on several fronts. The D.C. Circuit ruled that Microsoft's actions constituted unlawful maintenance of its Windows operating systems monopoly. The court indicated that by irreversibly integrating the browser into its operating system, Microsoft had threatened the emergence of alternatives to the Windows platform. (The integration impeded the distribution of Netscape, the principal rival browser, which had incorporated technologies that might have developed into rival platforms.)

The D.C. Circuit indicated, however, that a reversible integration would have been permissible. Had customers retained the ability to disintegrate the browser from the operating system and to substitute another browser, Microsoft's integrated browser/ operating system would not have had the exclusionary effects that it did. The court also indicated that if Microsoft could have shown why the integration was necessary for efficiency-related reasons, then even an irreversible integration might have been accepted. Whereas the court's focus in dealing with the monopoly maintenance issue was on the monopoly (or tying product) market, its focus in the section one issue was on the effects of the integration in the tied-product market. Here the court thought that because innovation

in software so often takes the form of adding new functionalities to platforms, the rule-of-reason should guide evaluation of a tying claim involving platform software. This approach placed the burden of establishing an unreasonable restraint upon the plaintiff objecting to the integration. Stated in different language, the integration was presumed lawful. And the plaintiff bore the burden of rebutting that presumption.

These leveraging issues that arose in the *Microsoft* case are potentially present whenever the owner of a de facto standard uses that standard in a way that impedes the development of a rival technology. Integrating a new functionality into a de facto standard may very well carry the potentiality of impeding the development of an independent market for the new technology. Similarly for consensual standards. Should a standard-setting authority seek to leverage the standard to expand its scope or to project it into covering a new functionality, it might be vulnerable to the same critique as was directed against Microsoft. Consensual standards differ from de facto standards, of course, because the standard-setting authority does not necessarily possess the economic interest in advancing the new functionality as a standard or as part of a standard, as did Microsoft. Yet the standard-setting authority may be reflecting the political alignments of industry members. And the dominant sector of the industry may, in some circumstances, possess economic interests analogous to those that motivated Microsoft. If so, then the cases would be similar.

9. Licensing: Contractual Restrictions

Besides the unlawful exclusionary conduct involved in integrating its browser into its operating system, Microsoft also imposed a number of exclusionary terms in its license agreements. These terms, in various ways, were designed to prevent computer manufacturers from substituting the Netscape or other alternative browser for the Microsoft browser. The D.C. Circuit ruled these exclusionary terms unlawful where Microsoft could not show a substantial efficiency-based reason for them. Microsoft also attempted to justify these exclusionary terms on the basis of its copyrights. The court, however, took an analogous approach to the proffered copyright justifications. The court rejected out of hand a justification that essentially asserted that copyright authorized any restriction. But restrictions that were grounded in substantial copyright concerns were (or would be) upheld. Thus the court upheld a license restriction prohibiting modification of the Windows boot sequence to launch automatically a substitute user interface, on the ground that this restriction protected the work from being drastically altered. The court apparently would have accepted license restrictions necessary to maintain the stability and consistency of the Windows platform, but Microsoft failed to show that the restrictions in question were necessary to maintain the platform's stability and consistency.

The teaching of the D.C. Circuit's opinion thus may be that the owner of a de facto standard or a standards-setting authority must exert some care in choosing the terms it includes in a license of the technology embodied in the standard. A de facto standard is a monopoly in terms of market share, by definition. A mandatory standard is also a monopoly. In licensing the technologies embodied in those standards, the licensor must not include restrictions that prevent or discourage the use of alternative technologies without any basis in efficiency concerns. Because a mandatory

standard is inherently exclusionary, the D.C. Circuit opinion implicitly requires that the choice of a mandatory standard be grounded in efficiency concerns.

10. Intellectual Property Licensing and the Misuse Doctrines

The patent law contains a misuse doctrine that is the product both of an expansive judicial development and of carefully-crafted legislative limitations on those developments. In essence, the misuse doctrine provides that a patent cannot be enforced during the period that the patentee is “misusing” its patent. Misuse consists of extending the restrictions of the patent beyond the patent scope. Congress, however, has legislatively decreed that tying a nonstaple product—that is especially made for use with the patent—does not constitute misuse. Neither does a refusal to license a patent.

Since 1990 a number of courts have been developing an analogous doctrine of copyright misuse. Copyright misuse is said to be patterned upon the patent misuse doctrine, but the courts that have been developing the copyright version have looked only to the judicial developments of patent misuse for inspiration and have ignored the legislative limitations on patent misuse imposed by Congress. Recent copyright decisions find misuse as a result of tying one copyright license to another. The Ninth Circuit has found that an exclusive supply contract involving copyrighted subject matter constitutes misuse.

It is possible to view these misuse developments in the copyright arena as ill-founded. After all, the courts appear to be incorporating into copyright law patent doctrines that the Congress has legislatively repudiated. The more expansive applications of a copyright misuse doctrine, such as the Ninth Circuit’s ruling in *Practice Management*ⁱⁱ that an exclusive-supply provision in a licensing agreement constituted misuse are especially questionable. Yet an expansive misuse doctrine might very well fit a newly developing synthesis in which rights to exclude under the patent law are construed broadly while rights to exclude under copyright are much more limited. Such a distinction would fit the underlying structure of both laws. Because patent law is designed to reward major and nonobvious invention, it confers exclusive rights against the world, even against late-comers who have independently conceived the same invention. Copyright, by contrast, provides only protection against copying. Moreover, Congress has repeatedly strengthened the rights of patent holders in enacting and amending section 271 of the patent act. The new synthesis proceeding from these and other developments is described below.

11. An Evolving Synthesis of Antitrust and Intellectual Property Law: Impact on Licensing

Over the years, the strength and scope of patent law protection has grown. The Congress has legislatively intervened twice to strengthen the rights of patentees against misuse claims. The Federal Circuit has also strengthened patent protections in numerous ways. By contrast, copyright protection over software has been eroding for some time. The courts have narrowed software protection through the development of the abstraction-filtration-comparison test in cases like *Altai*,ⁱⁱⁱ and they have helped to combat the use of copyright as a barrier to interoperability and as a barrier to the development of competing programs. Congress has also indicated through legislation that copyright ought not to be a bar to achieving interoperability.

I think that we are seeing the development of a synthesis between antitrust and intellectual property law that runs something like this: Intellectual property rights will generally trump antitrust law. The reason for this is that intellectual property laws and antitrust laws both seek to foster consumer welfare but the effectiveness of the intellectual property laws requires that they be exempt from the short-term concerns of antitrust laws. A second reason for the preference for intellectual property laws is that they are addressed to a narrow subject matter and thus are not properly swept up in the broad policy concerns of the antitrust laws. A third reason why the intellectual property laws trump antitrust laws is that significant competition policy concerns are already incorporated in those laws in the context of misuse doctrines. Congress has intervened to severely limit the scope of patent misuse doctrines. But the copyright misuse doctrine has been interpreted expansively. Moreover, Congress has intervened to limit copyright restrictions in instances in which they produced short-term restraints that were too broad.

These developments are reflected in the case-law. The Federal Circuit's *Xerox* decision^{iv} accords broad scope to both patents and copyrights. But the D.C. Circuit's *Microsoft* decision is a helpful counterpoint to the *Xerox* decision. In *Microsoft*,^v the court insisted that copyright could be used as a defense to an antitrust claim only where a core copyright concern (such as protection of a work from drastic alteration) underlies the assertion of copyright as a justification for behavior that would otherwise be exclusionary. The expansionary development of the copyright misuse doctrine suggests that copyright may lose much of its potential for effecting ties and other contractual restraints. Copyright appears to have lost its capacity as a legal device to protect software programs from interoperability.

There is a latent problem in the copyright misuse area involving the licensing of derivative works, especially derivative works that are also compilations. I will address that problem below.

12. Standards: Leveraging and Intellectual Property Licensing Terms and Practices

Current copyright misuse case-law indicates that when a copyright license is used to secure exclusive rights beyond the scope of the copyright, misuse occurs. This approach to misuse brings tying contracts, package licenses, exclusive supply contracts and other restrictions under the scope of misuse. How would this case-law affect the licensing of several technologies that composed an industry standard? Of course, there are reasons for combining technologies and licensing them as a package. The DOJ/FTC intellectual property guidelines recognize this. Yet copyright misuse case-law appears to treat the packaging of several copyright licenses as misuse. How would copyright misuse case-law treat an attempt by the holder of the copyright on technology embodied in an industry standard to expand that standard into new functionalities or to leverage the standard into other markets? This is the issue discussed above in the context of antitrust law. Does misuse law provide different results?

In the Microsoft antitrust case, the D.C. Circuit ruled that—in the context in which Microsoft was operating—integrating two products into a single integrated combination in an irreversible way

required an efficiency justification. First, recall the context in which Microsoft was operating. When it integrated its browser into its operating system, Microsoft was impeding the distribution of a rival browser (Netscape) that carried technology potentially threatening to its operating systems monopoly. When that court indicated that the rule of reason should govern the section-one evaluation of the integration of the browser into the operating system, the court was also saying that the lawfulness of the integration would be assessed under an efficiency criterion. (The burden, however, would be on a plaintiff objecting to the integration to show that the integration was inefficient.)

The use of an efficiency standard to govern the lawfulness of the Microsoft integration is not surprising, because efficiency concerns underlie antitrust analysis. I suggest, however, that the copyright misuse case-law ultimately will absorb the efficiency criterion from antitrust law. When the issue of licensing two copyrighted products as a package arises, copyright law eventually will absorb the efficiency criterion. In saying that I expect the efficiency criterion of antitrust law to be absorbed into copyright misuse doctrine, I am aware that the current case-law is hostile to that position. In *Lasercomb*,^{vi} the Fourth Circuit explicitly rejected a rule-of-reason (and thus an efficiency) defense to alleged misuse.^{vii} I hope that this aspect of the misuse case-law eventually will be overturned, and that copyrights will be enforced in all cases in which the packaging is efficient. Presumptions and burdens of proof on the efficiency issue will, of course, also have to be worked out.

ⁱ *Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492 (1988)

ⁱⁱ *Practice Management Information Co. v. American Med. Ass'n*, 121 F.3d 516 (9th Cir. 1997).

ⁱⁱⁱ *Computer Associates International v. Altai*, 982 F.2d 693 (2d Cir. 1992).

^{iv} *In re Independent Service Organizations Antitrust Litigation*, 203 F.3d 1322, 1326 (Fed. Cir. 2000), cert. denied, 531 U.S. 1143 (2001).

^v *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001).

^{vi} *Lasercomb America, Inc. v. Reynolds*, 911 F.2d 970 (4th cir. 1990).

^{vii} 911 F.2d at 970.